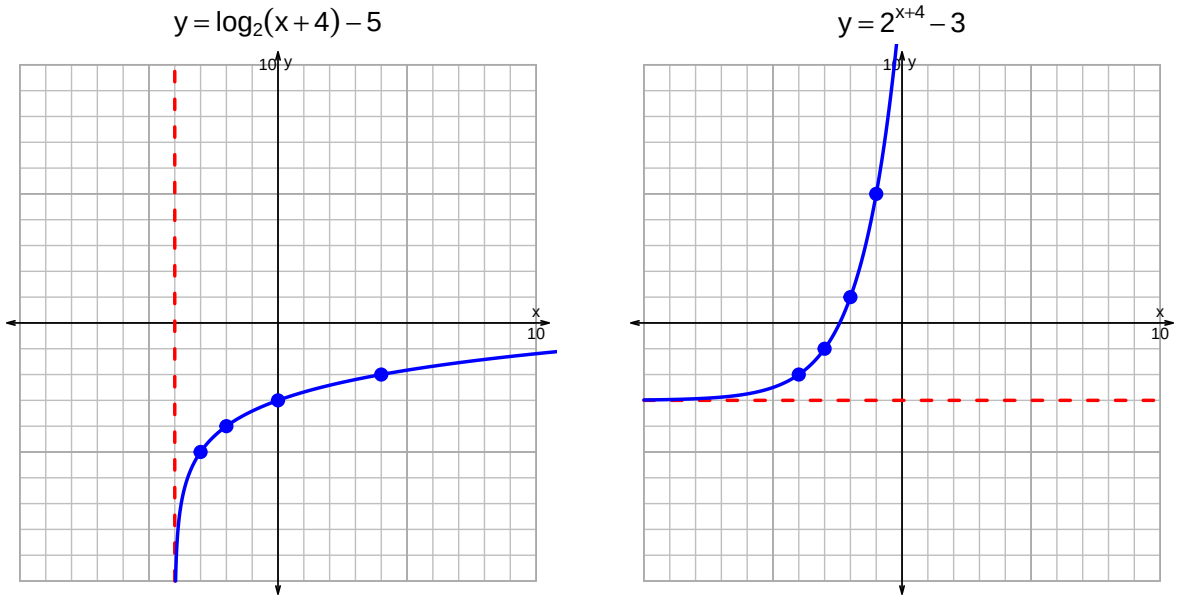
Name: Date:

S18QUIZ: EXP LOG (SLTN v217)

1. Graph $y = \log_2(x+4) - 5$ and $y = 2^{x+4} - 3$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-19 = \left(\frac{-5}{4}\right) \cdot 10^{7t/3}$$

Divide both sides by $\frac{-5}{4}$.

$$\frac{19 \cdot 4}{5} = 10^{7t/3}$$

Take log, base 10, of both sides.

$$\log_{10}\left(\frac{19 \cdot 4}{5}\right) = \frac{7t}{3}$$

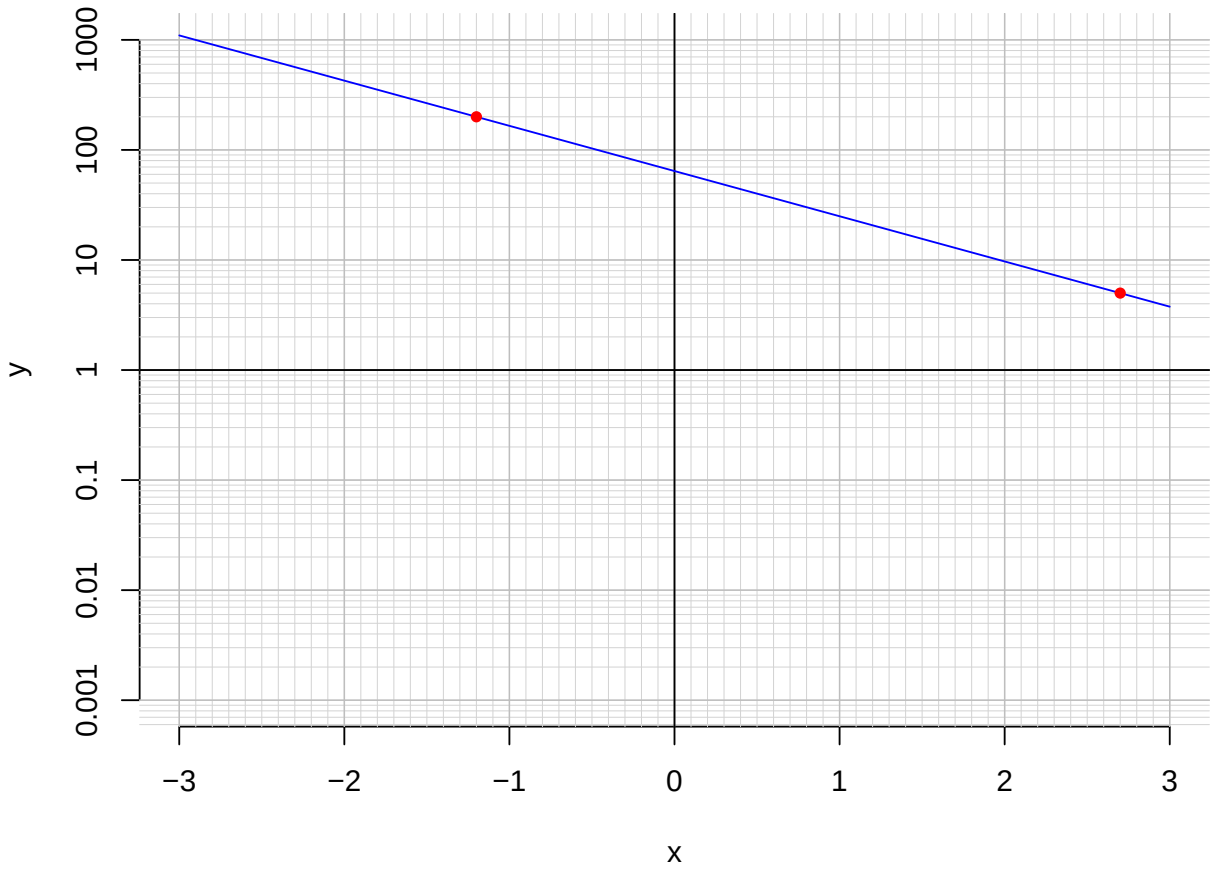
Divide both sides by $\frac{7}{3}$.

$$\frac{3}{7} \cdot \log_{10}\left(\frac{19 \cdot 4}{5}\right) = t$$

Switch sides.

$$t = \frac{3}{7} \cdot \log_{10}\left(\frac{19 \cdot 4}{5}\right)$$

3. An exponential function $f(x) = 64.3 \cdot e^{-0.946x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(2.7)$.

$$f(2.7) = 5$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{0.946} \cdot \ln\left(\frac{x}{64.3}\right)$$

c. Using the plot above, evaluate $f^{-1}(200)$.

$$f^{-1}(200) = -1.2$$